

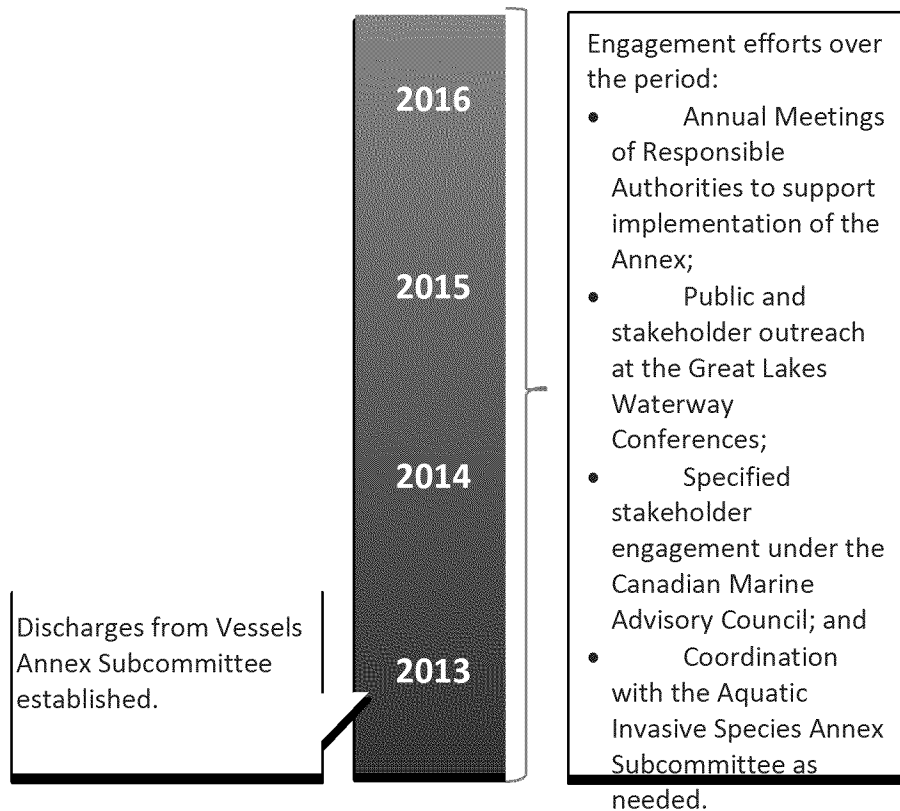
## **DISCHARGES FROM VESSELS ANNEX**

### **OVERVIEW**

The Great Lakes and St. Lawrence Seaway System is a binational trade route that supports tens of thousands of jobs on both sides of the border and serves as a critical transportation corridor for commodities such as iron ore, coal, minerals and grain. Canada and the United States recognize the environmental and economic importance of this system and ensuring it is safeguarded. The Discharges from Vessels Annex of the 2012 GLWQA commits the responsible authorities in Canada and the United States (Transport Canada, Fisheries and Oceans Canada, the Canadian Coast Guard, the United States Coast Guard, and the United States Environmental Protection Agency) to prevent and control vessel discharges that are harmful to the waters of the Great Lakes, including: Oil and hazardous Polluting Substances; Garbage; Wastewater and Sewage; Biofouling; Antifouling Systems; and Ballast Water.

Under the 1987 GLWQA, biennial reports to the International Joint Commission from the responsible Canadian and the United States agencies (last submitted in 2012) consistently indicated that potential discharges of oil and hazardous substances, garbage, wastewater, ballast water and sewage from vessels are well regulated and that sufficient reception facilities are available to receive discharges ashore. This continues to be the case as enforcement of Canadian and United States domestic regulatory regimes and applicable international conventions has reduced the risk of discharges of concern from vessels. Canada and the United States are committed to the continued prevention and reduction of threats to the waters of the Great Lakes from all vessel discharges.

### **PROGRESS TOWARD MEETING GLWQA COMMITMENTS**



This Annex's implementation is supported by the Discharges from Vessels Annex Subcommittee, co-led by Transport Canada and the United States Coast Guard. Organizations on the subcommittee include:

Co-Leads: Transport Canada, United States Coast Guard. Members Fisheries and Oceans Canada, Canadian Coast Guard, Ontario Ministry of Transportation, United States Environmental Protection Agency, Wisconsin Department of Natural Resources, Indiana Department of Environmental Management, United States Maritime Administration, Lake Carriers Association, Shipping Federation of Canada, Canadian Ship Owners Association

#### Priority for Action

Working together, with stakeholders towards compatible, fair, practicable and environmentally protective Great Lakes requirements for ballast water management.

Transport Canada(TC) the United States Environmentally Protection Agency ( EPA) and the United States Coast Guard (USG) will continue dialogue seeking consistency and compatibility for the current or forthcoming implementation of their respective ballast water regulatory regimes: Ballast Water Control and Management Regulations to implement the International Convention for the Control and Management of Ship' Ballast Water and Sediments (2004) (TC); Vessel General Permit 3.0(EPA) and the Ballast Water Discharge Standard(USCG)

## Priority for Science

Develop compatible approaches to sampling and analysis of ships ballast water in connection with the ballast water performance standard in 33 CFR Part 151 and Regulation D-2 of the International Convention for the Control and Management of Ship' Ballast Water and Sediments 2004. Develop a compatible approach to collecting and analyzing data concerning the implementation of the performance standard on the Great Lakes.

## BINATIONAL ACTIONS TAKEN

### Preventing the discharge of Oil and Hazardous Polluting Substances from vessels.

- Transport Canada and the United States Coast Guard have a compatible and effective port and flag state regulatory regime in place to prevent the discharge of oil or hazardous substances on the Great Lakes from vessels and maritime transportation-related facilities that transfer oil or hazardous substances in bulk. The countries' port state control initiatives are risk-based vessel examination programs focused on foreign-flag vessels (non-Party) that operate in their respective waters to ensure compliance with international conventions and the Parties' laws and regulations. The Parties' flag-state programs ensure comparable compliance by the Canadian or United States flag fleets.
- In response to the possibility of the maritime transportation of crude or other heavy oils on the Great Lakes, Canada and the United States created a working group on Maritime Transportation of Hydrocarbons and their by-products. This multi-agency group, chaired by the Transport Canada and the United States Coast Guard, serves as a binational forum to facilitate discussions regarding maritime shipments of hydrocarbons and their by-products (defined initially as crude oil and associated bulk liquids) and address any concerns that may arise in a coherent and consistent manner. The initial focus of this work is on freshwater, including the Great Lakes and its tributaries, and the St. Lawrence River and Seaway. A phased work plan has been developed and will focus on areas of mutual interest in preparedness, response, liability, and compensation.

### Addressing the discharge of Garbage from vessels.

- The illegal discharge of Garbage from commercial vessels in the Great Lakes continues to be a rare event. For the Great Lakes and the coasts, the majority of marine debris entering the water comes from shore side sources.

- No enforcement events for violations of the International Convention for the Prevention of Pollution from Ships Annex V (MARPOL V) or other garbage-related incidents were reported between 2013 and 2016.

**Ensuring adequate reception facilities for Garbage from vessels.**

- Both Parties indicate there are sufficient and adequate MARPOL V reception facilities on the Great Lakes. There has not been a validated report of an inadequate reception facility on the Great Lakes since 2006.

**Addressing the discharge of Wastewater and Sewage from vessels.**

- Several Great Lakes states have established “no discharge zones” of sewage in their respective waters in accordance with the United States Clean Water Act. Since Marine Sanitation Devices on most vessels are designed for continuous operations, it has been reported that some vessels with no or insufficient holding tanks have been forced to divert untreated sewage or treated effluent to ballast tanks to remain in compliance. Both Canada and the United States are in agreement that ballast tanks are not an appropriate place to store sewage – treated or untreated.

**Preventing harm from vessels’ Antifouling Systems.**

- Both Canada and the United States have regulations or policies in place implementing the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (IAFS), which ensures anti-fouling paint applied to vessels is free of tributyltin. Anti-fouling paint containing tributyltin is not available for sale on either side of the border. Both countries issue IAFS certificates to their flag state vessels and incorporate the IAFS in their respective Port State Control enforcement programs.

**Addressing the discharge of Aquatic Invasive Species in the Ballast Water from vessels.**

- The risk of the introduction of aquatic invasive species (AIS) to the Great Lakes via ballast water discharges from vessels arriving from outside of Canada's Exclusive Economic Zones<sup>1</sup> has been substantially reduced. Because of compatible ballast water exchange regulations between Canada and the United States and stringent binational enforcement, no new AIS attributable to the ballast water of these ships has been reported in the Great Lakes since 2006. Since that date, the Ballast Water Working Group<sup>2</sup> has examined 100% of these vessels. During these ballast management exams, 100% of the vessels' ballast tanks are examined to ensure that tanks have been fully exchanged or sufficiently flushed with sea water. Vessels that had not exchanged their ballast water or flushed their ballast tanks were required to either retain the ballast water and residuals onboard, treat the ballast water in an environmentally sound and approved manner, or return to sea to conduct a ballast water exchange. Vessels that were unable to exchange their ballast water or residuals and that were required to retain them onboard received a verification exam during their outbound transit, prior to exiting the Seaway. The Ballast Water Working Group verification efforts indicated that there was no non-compliant ballast water discharged in the Great Lakes. The Ballast Water Working Group annual reports for the past three years can be accessed at:
  - [http://www.greatlakes-seaway.com/en/pdf/2014\\_BW\\_Rpt\\_EN.pdf](http://www.greatlakes-seaway.com/en/pdf/2014_BW_Rpt_EN.pdf)
  - [http://www.greatlakes-seaway.com/en/pdf/2013\\_BW\\_Rpt\\_EN.pdf](http://www.greatlakes-seaway.com/en/pdf/2013_BW_Rpt_EN.pdf)
  - [http://www.greatlakes-seaway.com/en/pdf/2012\\_BW\\_Rpt\\_EN.pdf](http://www.greatlakes-seaway.com/en/pdf/2012_BW_Rpt_EN.pdf)
- Significant work is underway to move the current exchange-based programs to binationally compatible technology-based regimes that will require treatment of all ballast water to a common discharge standard and address the risk of spreading organisms. As agreed in the 2012 GLWQA, both Parties are taking into account, as appropriate, the standards set forth in the *International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004* (the "BWM Convention") and its associated guidance. Canada has acceded to the BWM Convention while the United States Environmental Protection Agency, the United States Coast Guard, and the American Great Lakes States have established requirements under the *National Invasive Species Act* and the *Clean Water Act*. While there are differences between these approaches, the United States and Canada continue to work closely together – including bilaterally through annual meetings of the responsible authorities outlined in the Discharges from Vessels Annex and at the International Maritime Organization – towards maintaining compatible, fair, practicable and environmentally protective ballast water requirements in both countries.

<sup>1</sup> In relation to the Great Lakes, the Exclusive Economic Zones stretches 200 nautical miles from Atlantic coast and includes the Gulf of St. Lawrence.

<sup>2</sup> The Ballast Water Working Group is comprised of representatives from the United States Coast Guard, the U.S. Saint Lawrence Seaway Development Corporation, Transport Canada, and the Canadian St. Lawrence Seaway Management Corporation. Created in 2006, the group's mandate is to develop, enhance, and coordinate binational compliance and enforcement efforts to reduce the introduction of aquatic invasive species by transoceanic ships via ballast water and residuals.

**Preventing the discharge of Biofouling from vessels.**

- Both Canada and the United States have participated in the development of the International Maritime Organization's *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species*.

## **DOMESTIC ACTIONS TAKEN**



### **Ballast Water**

- Were the BWM Convention to enter into force now, technical and regional compatibility factors would pose challenges to ships operating primarily on the Great Lakes-St. Lawrence Seaway system. As this Convention has not yet entered into force, Canada will continue to monitor these challenges and is considering options in case these challenges persist upon the Convention's entry into force. Canada remains committed to the Convention and will continue to work with the United States and other stakeholders towards compatible, fair, practicable and environmentally protective Great Lakes requirements meeting Canada's international obligations.
- Canada also continues to actively conduct ballast water research applicable to the Great Lakes. Results of a recent national risk assessment indicate that the ballast water transported by Great Lakes ships poses a high risk for spreading aquatic invasive species between ports in Canada and the United States when compared with the ballast water transported by international vessels (which are subject to regulations in both countries focused on lowering the risk of introductions from foreign ports). The following ballast water research studies undertaken by Canada since 2012:
  - Combining ballast water exchange and treatment to maximize prevention of species introductions to freshwater ecosystems (<http://pubs.acs.org/doi/abs/10.1021/acs.est.5b01795>)

- Are the Great Lakes at risk of new fish invasions from trans-Atlantic shipping? (<http://www.sciencedirect.com/science/article/pii/S0380133015001422>)
- Relative Invasion Risk for Plankton across Marine and Freshwater Systems: Examining Efficacy of Proposed International Ballast Water Discharge Standards (<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0118267>)
- National risk assessment for introduction of aquatic nonindigenous species to Canada by ballast water ([http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2013/2013\\_128-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2013/2013_128-eng.html))
- Evaluating efficacy of a ballast water filtration system for reducing spread of aquatic species in freshwater ecosystems ([http://www.reabic.net/journals/mbi/2014/3/MBI\\_2014\\_Briski\\_et al.pdf](http://www.reabic.net/journals/mbi/2014/3/MBI_2014_Briski_et al.pdf))
- Domestic ships as a potential pathway of nonindigenous species from the St. Lawrence River to the Great Lakes (<http://link.springer.com/article/10.1007%2Fs10530-013-0537-5>)
- Physical dispersion and dilution of ballast water discharge in the St. Clair River: Implications for biological invasions (<http://onlinelibrary.wiley.com/doi/10.1002/wrcr.20201/abstract>)
- Taxon- and vector-specific variation in species richness and abundance during the transport stage of biological invasions ([http://www.aslo.org/lo/toc/vol\\_58/issue\\_4/1361.html](http://www.aslo.org/lo/toc/vol_58/issue_4/1361.html))
- A multi-dimensional approach to invasive species prevention (<http://pubs.acs.org/doi/abs/10.1021/es3029445>)
- Role of domestic shipping in the introduction or secondary spread of nonindigenous species: biological invasions within the Laurentian Great Lakes (<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2012.02186.x/full>)
- Efficacy of NaCl brine for treatment of ballast water against freshwater invasions (<http://www.sciencedirect.com/science/article/pii/S0380133011002176>)
- Risk assessment for ship-mediated introductions of aquatic nonindigenous species to the Great Lakes and freshwater St. Lawrence River ([http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011\\_104-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011_104-eng.html)).
- "In consultation with stakeholders, and in accordance with the GLWQA, Canada has reviewed the efficacy of shipboard technologies for ballast water and the feasibility of fitting them onboard Great Lakes ships. A report of this process is titled *Transactions on Ballast Water Treatment Systems for the Great Lakes-St. Lawrence Seaway System* and is available online at: [https://www.tc.gc.ca/media/documents/marinesafety/Transactions for BWTS on the Great Lakes - Transport Canada.pdf](https://www.tc.gc.ca/media/documents/marinesafety/Transactions_for_BWTS_on_the_Great_Lakes_-_Transport_Canada.pdf)"



- On August 28, 2015, the marine archaeological group, Cleveland Underwater Explorers (CLUE), discovered the barge ARGO (which had sunk during a storm in 1937 while carrying approximately 200,000 gallons of petroleum product – believed to be benzol and/or a light petroleum variant) approximately nine miles east of Kelleys Island and two miles south of the international border with Canada in approximately 13 meters of water. On September 8, 2015, CLUE notified the United States Coast Guard of the discovery. The GLEC was notified of a suspected minor discharge of product from the barge in accordance with Article 6 (a) of the 2012 GLWQA, and soon after, a Unified Command consisting of the Ohio Environmental Protection Agency and the United States Coast Guard was established. Assistance was provided by the United States Environmental Protection Agency, Ohio Department of Natural Resources, National Oceanic and Atmospheric Administration, Ohio Emergency Management Agency, Canadian Coast Guard, and Environment and Climate Change Canada. Over the following six weeks, the Unified Command oversaw the survey of the tank barge, preparations for the safe removal of several thousand gallons of a benzene-type hazardous substance from two of the barge's tanks.

### **Ballast Water**

- The United States Coast Guard continues to implement its rulemaking that established a performance standard for the allowable concentration of living organisms in ballast water discharged from ships in waters of the United States. Five independent laboratories are in the process of testing 18 systems for type approval<sup>3</sup>. Numerous additional vendors have filed a Letter of Intent to begin type approval testing.
- Additionally, the Coast Guard currently has issued 56 interim Alternative Management System determinations for ballast water treatment systems and the Coast Guard expects type approval applications from several of these manufacturers. These designations are intended as a bridging strategy to allow for the use of Ballast Water treatment systems that are type-approved by foreign administrations in accordance with the International Maritime Organization Ballast Water Management Convention of 2004.
- The first four ballast water management systems (BWMSs) type approval applications submitted to the Coast Guard proposed using an alternative test method of determining the efficacy of the ultraviolet BWMSs. A subsequent Coast Guard review concluded that the alternative test method was not equivalent because it does not measure the efficacy of the BWMSs to the required performance standard required by the regulations and the BWMSs were not approved.
- Through the Great Lakes Restoration Initiative, the United States supported the independent performance testing of ballast water systems for use in freshwater ecosystems. During 2013 to 2015, over 20 ballast water systems were tested at the Great Ships Initiative facility in Superior, Wisconsin. The Great Ships Initiative ([www.greatlakesinitiative.org](http://www.greatlakesinitiative.org)) mission is to accelerate research, development and implementation of effective ballast water management systems (BWMSs) on board commercial vessels that visit the Great Lakes region from abroad.

<sup>3</sup> Type Approval is the primary process for equipment and materials to receive United States Coast Guard approval. See [http://www.uscg.mil/hq/cg5/cg5214/eqpt\\_approval.asp](http://www.uscg.mil/hq/cg5/cg5214/eqpt_approval.asp) for further information.



- In addition, the following ballast water research studies undertaken by the United States:
  - Investigation Of Ballast Water Treatment's Effect On Corrosion (<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA613423>)
  - Ballast Water Treatment, U.S. Great Lakes Bulk Carrier Engineering and Cost Study, Volume 1: Present Conditions (<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA589870>)
  - Ballast Water Treatment, U.S. Great Lakes Bulk Carrier Engineering and Cost Study, Volume 2: Analysis of On-Board Treatment Methods, Alternative Ballast Water Management Practices, and Implementation Costs (<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA589362>)
  - Results of Shipboard Approval Tests of Ballast Water Treatment Systems in Freshwater (<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA613767>)
  - Efficacy of Ballast Water Treatment Systems: A Report by the EPA Science Advisory Board (<http://www.dtic.mil/get-tr-doc/pdf?AD=ADA550605>).

